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Study of Biofilm Formation by Proteus mirabilis Using Microtitre Plate Mueller Hinton Broth and Luria Bertani

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Introduction &Objective:*P.mirabilis* are more commonly associated with urinary tract infections, especially ascending infections in patients undergoing urinary catheterization.*Proteus mirabilis are* capable of living as biofilm and/or planktonic forms.Cells in the biofilm show higher degree of resistance to antimicrobial therapy and host immune responses compared with planktonic cells.The aim of the present study was to evaluate the ability of the *Proteus mirabilis strains* isolated from urinary tract infections to form biofilm in vitro and additionallyto compare biofilm formation in two Mueller Hinton Broth (MHB) and LuriaBertani (LB)mediums.

Materials &Methods:In this study 22 clinical isolates and a standard ATCC12453 strain of P.mirabilis were included. The strains were isolated from patients with urinary tract infection and identified by conventional microbiological tests. All the isolated bacteria were screened for their ability to form biofilm using the microtitre plate method. Bacterial biofilms were stained with 0.2% safranin. Dye was solubilized using alcohol-Aceton as solvent and theoptical density (OD) was measured at 492nm wavelength. The extent of biofilm formation was determined (OD of sample well-OD of control well).Each assay was performed in triplicate and repeated two times.

Results: The result of biofilm screening revealed that all examined strains were able to form biofilm. In LB medium the biofilm-forming ability in 13%of strain was ≥0.3, in17.4% of strains was between 0.3- 0.2, in 62.2% of strains was between 0.2 - 0.1, in 4.35% of strains was≤0.1. In MHBmedium the biofilm-forming ability in 30.4% of strains was ≥0.3, in 52.2% of strains was between 0.3-0.2, in 17.4% of strains was between 0.2 - 0.1.

Conclusion: Most of studiedP.mirabilis strains were able to produce biofilm. Overall, P.mirabilis *p*roduces more biofilm in MHB medium compared with LB.

Key words:*P. mirabilis,* Biofilm, Mueller Hinton Broth, LuriaBertani